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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.			
10/613,148	07/07/2003	Koji Nagata	520.42915X00	6729			
20457	7590	06/28/2005	EXAMINER				
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873				JARRETT, RYAN A			
ART UNIT		PAPER NUMBER					
2125							
DATE MAILED: 06/28/2005							

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/613,148	NAGATA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ryan A. Jarrett	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 July 2003.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5 and 10-15 is/are rejected.  
 7) Claim(s) 6-9 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/7/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 11-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment, or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

The claims are directed to a method that does not require computer-implementation or use of technology to accomplish. The claims allow for the involvement of subjective human decision and therefore do not necessarily produce repeatable, concrete results.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "the orthogonal coordinate" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "the data format" in line 14. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the bitmap pixel array" in line 4. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cooke US 4,482,810. For example Cooke discloses:

1. An exposure apparatus, comprising: a means for applying a charged particle beam or a light onto a sample, and exposing a desired pattern onto the sample; a data processing means for bitmapping the shape of the pattern, and generating the pattern shape data in the bitmap format; and a means for controlling the application of the charged beam or light onto the sample using the pattern shape data in the bitmap format, and the data processing means comprising a function of rejecting an overlap area between patterns from pattern vertex data defining the pattern shape; and a function of

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generating the pattern shape data in the bitmap format based on the result of the overlap rejection function (e.g., col. 3 line 25 – col. 4 line 2, col. 7 line 67 – col. 8 line 12, claims 1-6).

2. The exposure apparatus according to claim 1, wherein the data processing means has a data format for expressing the pattern shape by a pair of opposite corner point coordinates of each line parallel to any one coordinate axis of the orthogonal coordinates (e.g., col. 3 line 25 – col. 4 line 2, col. 7 line 67 – col. 8 line 12, claims 1-6).

3. An exposure apparatus, comprising: a means for applying a charged particle beam or a light onto a sample, and exposing a desired pattern onto the sample; a data processing means for bitmapping the shape of the pattern, and generating the pattern shape data in the bitmap format; and a means for controlling the application of the charged particle beam or light onto the sample using the pattern shape data in the bitmap format, and the data processing means comprising a function of decomposing the pattern shape into plurality of rectangle patterns parallel to any one coordinate axis of the orthogonal coordinates defined on the sample, and converting the pattern shape into a data format for expressing the pattern shape as a pair opposite point coordinates of each line parallel any one coordinate axis of the orthogonal coordinates defined on the sample; a function of grouping corner point data representing the respective rectangle patterns on a per given coordinate area basis, and sorting the respective grouped corner point data by reference to the coordinates of the respective corner point data; a function of rejecting an overlap area between patterns from the respective sorted corner point data; and a function of generating the pattern shape data in the bitmap format based on the result of the overlap rejection function (e.g., col. 3 line 25 – col. 4 line 2, col. 7 line 67 – col. 8 line 12, claims 1-6).

4. The exposure apparatus according to claim 3, wherein the coordinate area for grouping the respective corner point data is area corresponding to an array of pixels arranged adjacent to each other in a direction parallel to any one coordinate axis of the orthogonal coordinates defined on the sample out of pixel arrays of the bitmap (e.g., Figs. 6-8).

5. The exposure apparatus according to claim 3, wherein the line formed by the pair of the corner points representing the pattern and the direction of the bitmap pixel array for grouping the corner point

data are parallel to each other, and the direction of the bitmap pixel array for grouping the corner point data and the direction of scanning of the charged beam or light are parallel to each other (e.g., Figs. 6-8).

7. Claims 1-5 and 10 are additionally rejected under 35 U.S.C. 102(b) as being anticipated by Kamiyama et al. US 6,271,852. For example, Kamiyama et al. discloses:

1. An exposure apparatus, comprising: a means for applying a charged particle beam or a light onto a sample, and exposing a desired pattern onto the sample; a data processing means for bitmapping the shape of the pattern, and generating the pattern shape data in the bitmap format; and a means for controlling the application of the charged beam or light onto the sample using the pattern shape data in the bitmap format, and the data processing means comprising a function of rejecting an overlap area between patterns from pattern vertex data defining the pattern shape; and a function of generating the pattern shape data in the bitmap format based on the result of the overlap rejection function (e.g., Fig. 30A, Fig. 30B, col. 3 line 35 – col. 5 line 17).

2. The exposure apparatus according to claim 1, wherein the data processing means has a data format for expressing the pattern shape by a pair of opposite corner point coordinates of each line parallel to any one coordinate axis of the orthogonal coordinates (e.g., Fig. 30A, Fig. 30B, col. 3 line 35 – col. 5 line 17).

3. An exposure apparatus, comprising: a means for applying a charged particle beam or a light onto a sample, and exposing a desired pattern onto the sample; a data processing means for bitmapping the shape of the pattern, and generating the pattern shape data in the bitmap format; and a means for controlling the application of the charged particle beam or light onto the sample using the pattern shape data in the bitmap format, and the data processing means comprising a function of decomposing the pattern shape into plurality of rectangle patterns parallel to any one coordinate axis of the orthogonal coordinates defined on the sample, and converting the pattern shape into a data format for expressing the pattern shape as a pair opposite point coordinates of each line parallel any one coordinate axis of the orthogonal coordinates defined on the sample; a function of grouping corner point data

representing the respective rectangle patterns on a per given coordinate area basis, and sorting the respective grouped corner point data by reference to the coordinates of the respective corner point data; a function of rejecting an overlap area between patterns from the respective sorted corner point data; and a function of generating the pattern shape data in the bitmap format based on the result of the overlap rejection function (e.g., Fig. 30A, Fig. 30B, col. 3 line 35 – col. 5 line 17).

4. The exposure apparatus according to claim 3, wherein the coordinate area for grouping the respective corner point data is area corresponding to an array of pixels arranged adjacent to each other in a direction parallel to any one coordinate axis of the orthogonal coordinates defined on the sample out of pixel arrays of the bitmap (e.g., Fig. 30A, Fig. 30B, col. 3 line 35 – col. 5 line 17).

5. The exposure apparatus according to claim 3, wherein the line formed by the pair of the corner points representing the pattern and the direction of the bitmap pixel array for grouping the corner point data are parallel to each other, and the direction of the bitmap pixel array for grouping the corner point data and the direction of scanning of the charged beam or light are parallel to each other (e.g., Fig. 30A, Fig. 30B, col. 3 line 35 – col. 5 line 17).

#### ***Allowable Subject Matter***

8. Claims 6-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (571) 272-3742. The examiner can normally be reached on 10:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan A. Jarrett  
Examiner  
Art Unit 2125

6/14/05



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SUPERVISORY PATENT EXAMINER  
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